



River Clean Up Report

Overview

The Electron Hydro River Clean Up Report consists of a summary of the project, purpose for river clean up, and daily log of river clean-up work for the 2020 Electron Hydro Diversion Repair, Spillway Replacement and Bank Protection Project (Intake Project).

Project Summary

The purpose of the project is to repair the Electron wooden diversion apron structure, replace the spillway, and reinforce and replace existing shoreline bank protection. The spillway replacement is designed to better manage bedload.

As part of the Intake Project the initial phase of the project required the installation of a cofferdam to divert the river from the work area. The cofferdam was to be lined with HDPE plastic to keep water from leaking into work area. A few days after completion of the cofferdam part of the downstream portion of the cofferdam liner ruptured. Debris from the rupture exited the work area into the river system including Field Turf, a material that was chosen to be used as a cushion for the HDPE plastic liner to prevent tears and rips of the liner, which failed. Approximately 25% (617 square yards) of the Field Turf that was installed washed into the river along with pieces of the plastic liner. The remaining ~75% remains intact in the cofferdam. Estimates based upon *Electron Hydro Diversion Repair and Spillway Replacement Project Material Removal Plan* prepared by Shane Cherry Consulting.

Purpose

Electron Hydro seeks to immediately mitigate all environmental impacts from the debris released from the cofferdam by safely removing all identifiable debris in the Puyallup river.

Electron has tasked crews (25+ members) to survey, collect, and remove all pieces of debris from the cofferdam.

River Clean Up Summary

The Electron crews surveyed the Puyallup river from Calistoga bridge near Orting, WA to the Electron Hydro Intake project (approx. 19 miles). Over (435+DAE) manhours has so far gone into the debris removal effort.

The Puyallup Tribe conducted a drone survey of the River from the Electron intake downstream ~2 miles and sent Electron 26 different identified location points of debris.

Soon as Electron was given permission to clean upriver (Sep 1, 2020) a crew surveyed from the Electron intake down the section of the river that the tribe surveyed and verified debris.

Over a few days Electron continued to survey the river for debris. Surveying the river from the Electron intake to the powerhouse two more times and also extending the survey area further down river from the powerhouse to the Calistoga bridge near Orting, WA, surveying both downstream from powerhouse and upstream from the bridge.

Image 1 shows the total section of river that Electron, to date, has surveyed. Image 2 shows both the points given to Electron from the tribe (grey arrows) as well as new locations where Electron found debris. It should be noted that no black crumb was found from the intake to the powerhouse, the only debris that was found in this section was Field turf and plastic liner, all material at this point was saved and stored in a storage Conex (see image 9). From intake to powerhouse 100% of debris that was found was recovered from this section. Given the constant fluidity changes from the river it is hard to know if all material has been recovered yet. More debris was found on the second and third surveys through same section of river. Approximately 75% of what was found in this section was found within the first 2 miles downstream from the intake where the river braids out and deposits more materials and bedload. The remaining 25% was found between 2-3 miles downstream from the intake.

Image 3 shows points identified from Electron surveying from the powerhouse to Calistoga bridge. It should be noted that the only debris found in this section of the river was the black crumb, no larger pieces of debris (e.g. turf or plastic liner) was found in this section. The black crumb that was found was between 1.75

and 2.5 miles downstream from the powerhouse. The total amount of black crumb found was approx. 1/5 of a 5-gallon bucket, 1 full sandwich sized Ziplock bag, and two grocery bags.

The following section includes the daily log that Electron has kept while cleaning up the river and ensure minimal environmental impact on the Puyallup river system.

River Clean Up Daily Log

Sections of Puyallup river Surveyed/Cleaned (by date):

Failure of bypass liner July 30, 2020

- a. Electron crews immediately surveyed downstream from the intake approximately 4000 ft and collected Field turf and plastic liner material. Material collected was disposed of into dumpster. Material was removed with an excavator due to higher water levels.

Aug 6, 2020

- a. Stop Work Order by Pierce County

Aug 7, 2020

- a. Stop Work ordered by Army Corps of Engineers
- b. Electron Crew took site dumpsters to landfill. Approximately between ½ to 2 yards of Field turf and plastic liner pieces were found, collected, and thrown into dumpsters that were sent to the dump. (See Attached Receipts).

Aug 8, 2020 to Sept 1, 2020

- a. Electron halted all clean-up work per Stop Work order by County and Army Corps of Engineers
- b. Notification was given Sep 1, 2020 that allowed Electron to perform turf clean-up work starting Sep 2, 2020

Sep 2, 2020

- a. Electron Crew 1 (4 individuals) began survey from Electron Intake and went downstream ~ 2miles in the river noting points from drone survey from the tribe. Found all noted points from tribe (see table 1). Over 90% of the plastic liner and turf was collected and piled up into 4 super sacks worth of debris ~1.75 miles from intake, to be removed safely later. The remaining pieces were verified and found, but water levels were deemed too high to safely remove this day.

Sep 3, 2020

- a. Electron Crew (2 individuals) surveyed from riverbank ~2.5 miles starting at Intake heading downstream. Noted that water levels were still high and unsafe to remove debris.

Sep 4, 2020

- a. Electron Crew 1 (4 individuals) went to location of the Sep 2, 2020 debris pile and removed 4 super sacks of plastic liner and turf. ~ 1.75 miles from intake.

Sep 7, 2020

- a. Electron devised plan to survey from Orting, WA to Electron Powerhouse.

Sep 8, 2020

- a. Electron Crew 1 (4 individuals) started at Electron Powerhouse and surveyed down-river to bridge. Crew found ~1/5 of a 5gal bucket of black crumb and removed what was found.
- b. Electron Crew 2 (4 individuals) started at bridge and surveyed up-river 4 miles to Electron Powerhouse. Crew found one Ziplock bag worth of black crumb and removed what was found.
- c. Electron Crew 3 (4 individuals) started in Puyallup River at the Calistoga Bridge near Orting, WA and surveyed up-river 4 miles to bridge. Crew did not find any debris from cofferdam.

Sep 9, 2020

- a. Electron Crew 1 started at Electron intake and surveyed down-river 3 miles. Crew found pieces of liner and Field turf and filled up two trash bags full of liner and piled up for removal ~ 2 miles downstream from intake near road.
 - i. Between 2-3 miles down-stream crew found pieces of liner and Field Turf but had no way to safely remove and stored what could be safely removed out of high-water level of river to be packed out.
- b. Electron Crew 2 started at bridge and walked up-river to Electron Powerhouse. Crew used portable battery powered vacuums to pick up black crumb out of river.

Sep 10, 2020

- a. DAE 1 crew went back to vacuum up black crumb from river between powerhouse and bridge. Collected and removed ~ two grocery bags worth.

Sep 11, 2020

- a. Electron 1 with 4 of DAE crew members collected turf and liner that was piled up from Electron crew on 9/9. Stored materials in storage container at main office.
- b. DAE 1 crew walked from Basin to intake
- c. Found and piled up turf and plastic liner ½ mile south of Neisson Creek

Sep 14, 2020

- a. Electron and DAE 1 Crew packed out and removed turf and liner from Sep 11, 2020. Stored materials in storage container at main office. No new material was found.

Sep 15, 2020

- a. Electron and DAE 1 Crew packed out and removed turf and liner from Sep 11, 2020. Stored materials in storage container at main office. No new material was found.

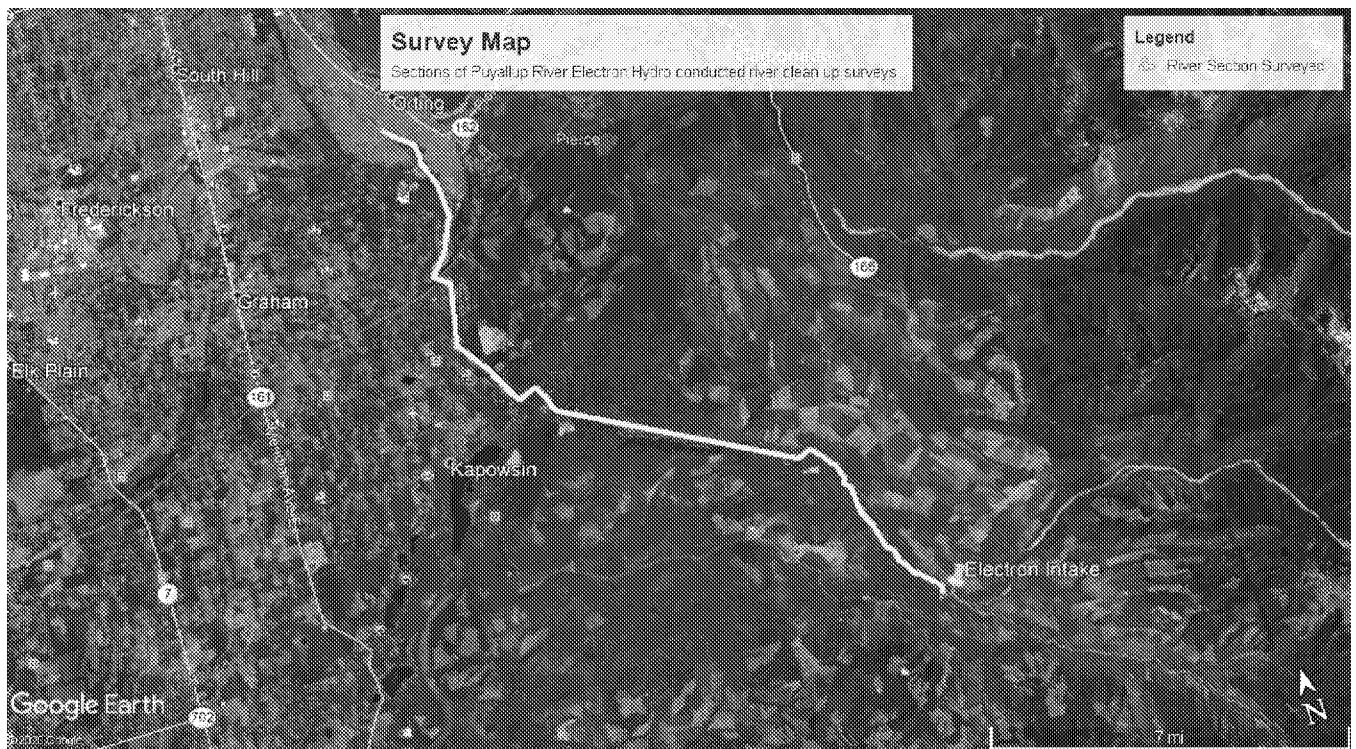


Image 1: Electron Hydro Survey Map – Section of Puyallup River surveyed. (Covering approx. 19 miles)

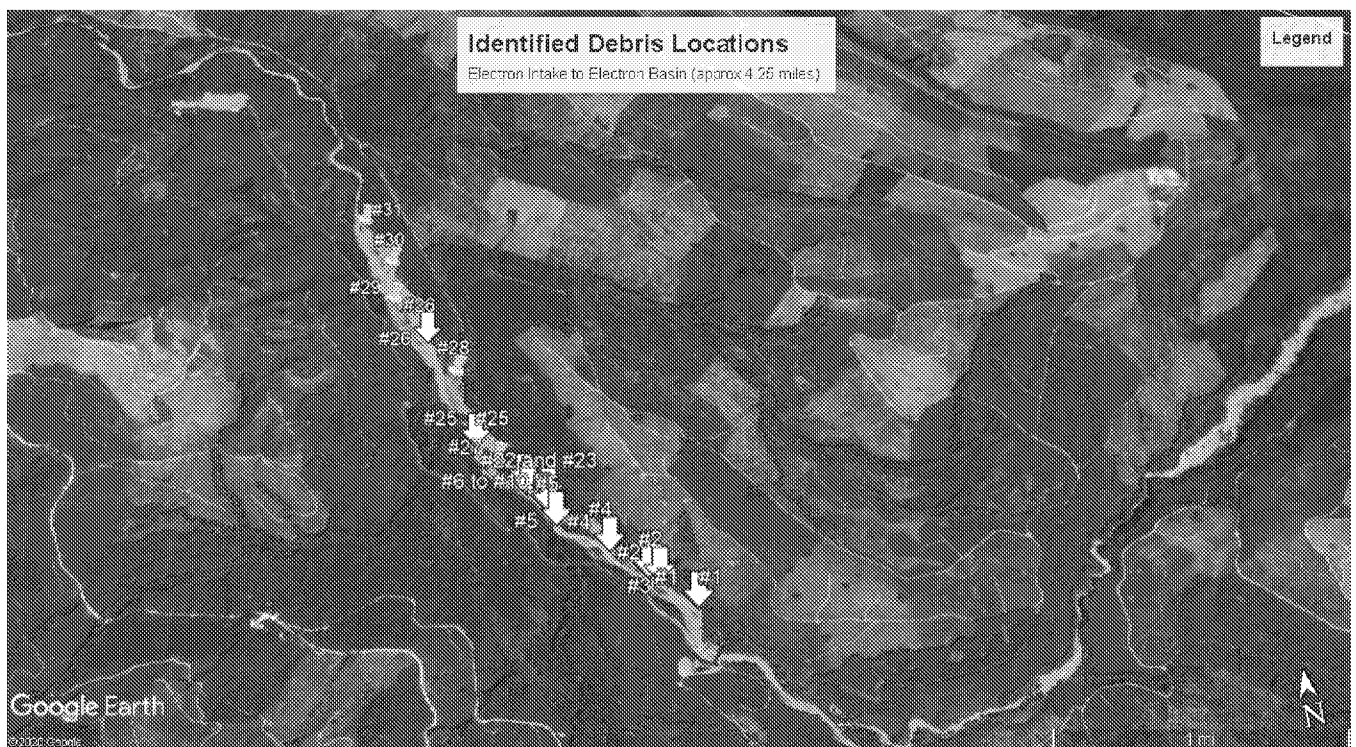


Image 2: Electron Intake to Basin. Marked points of where debris was identified and removed. Debris found - pieces of Field Turf and Plastic Liner (approx. 4.25 miles)

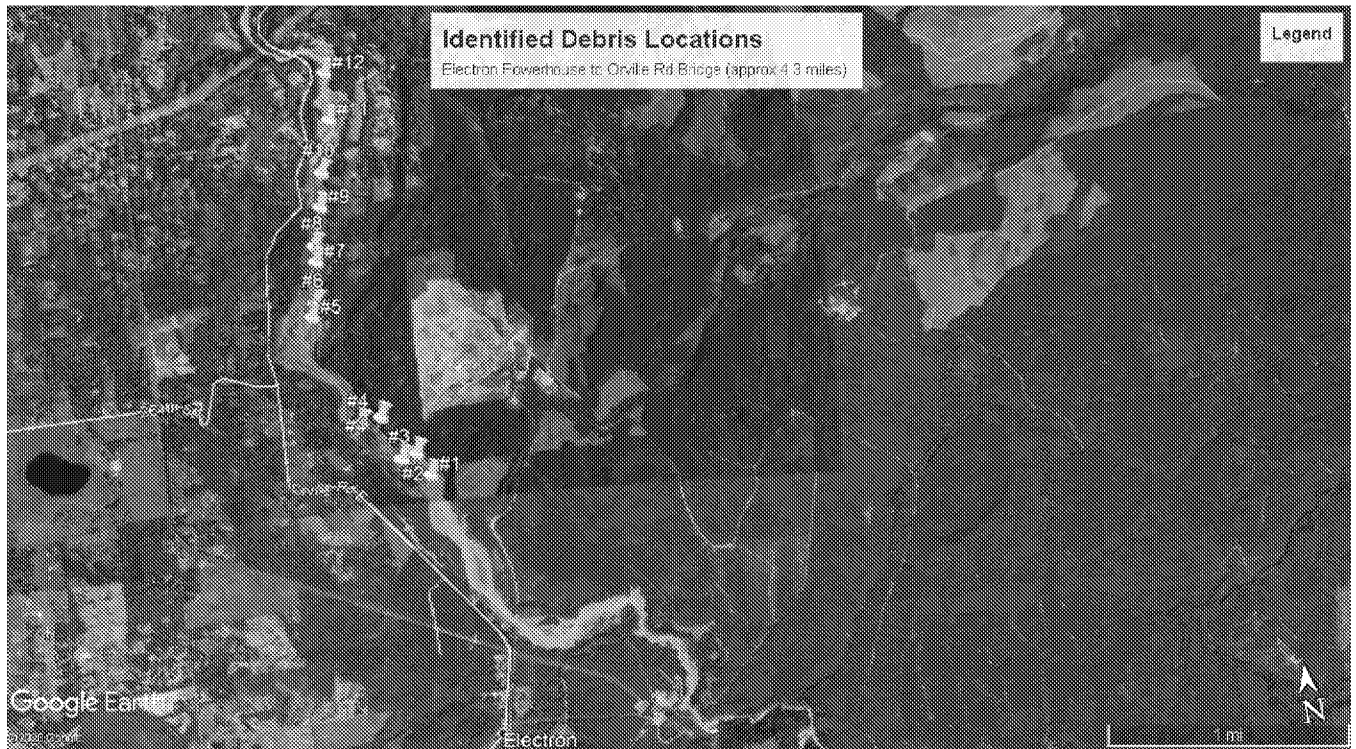


Image 3: Electron Powerhouse to Orville Rd Bridge. Marked points of where debris was identified and removed. Debris found - black crumb from Field Turf (approx. 4.3 miles)

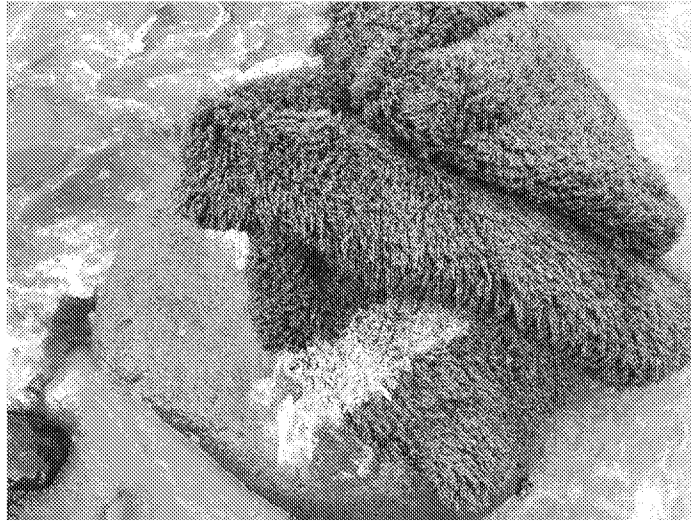


Image 4. Turf piled in river for collection. Photo taken Sep 12, 2020



Image 5. Turf and plastic liner stored in storage container. Photo taken Sep 12, 2020



Image 6. Black crumb collected from river. Photo taken Sep 12, 2020



Image 7: Electron crew members packing plastic liner into supersacks for removal. Photo taken Sep 2, 2020



Image 8: Electron crew members packing supersacks of debris to be hauled to company storage container. Photo taken Sep 2, 2020



Image 9: All collected Field turf, plastic liner, and black crumb stored in Conex. taken Sep 15, 2020

FORCED, LLC dba LMI-304th
304TH LANDFILL
17825 Meridian St E
Payallop, MA 08375

Weighted: Dana

Deposit: Dana

BILL TO: 0
Cash Customer

Vehicle ID: C101

Reference:
PO #: TURF

NOTES: DAN

Origin: OTHER

DATE IN: 08/07/2020 TIME IN: 10:59:43
DATE OUT: 08/07/2020 TIME OUT: 10:57:31

INBOUND TICKET Number: 03-00636823

SCALE 1 GROSS WT.	40700 LB
SCALE 2 TARE WT.	31080 LB
NET WEIGHT	9620 LB

Qty	Description	Amount
4.810	CONST & DEMO-COMM	805.10

ST REFUSE	28.98
NET CASH AMOUNT:	834.08

AMT. TENDERED:	834.08
CHANGE AMOUNT:	0.00

FORCED, LLC dba LMI-304th
17825 Meridian St E
Payallop, MA 08375
(953) 847-7555

SALE

Terminal ID	000000004944
Trans ID	00000710570158378E
Order ID	20080710570158378E
Receipt #	Purchase
Trans Type	2020-08-07 10:57:14
Date/Time	Visa
Card Type	XXXXXXXXXX
Card Number	CHIP READ
Entry Legend	CONTACT
Entry Method	000002
Approval Code	8848DF6FC6063583
AD	0017
STU	A0000000031010
AID	VISA DEBIT
AID NAME	8080008000
TVR	8800
TSI	83
Resp ID	38022064635984E
TRM REF #	0F2X
VAL CODE	

Total Amount USD834.08

Description:

Approved - Thank You

X
Cardholder Signature

Buyer agrees to pay total amount above
according to cardholder's agreement with
issuer.

Customer Copy
This is a copy for the
verification.

Image 10. (1 of 2) Receipts to landfill that included turf and plastic debris.

POCED, LLC dba LSI-304th
 304TH LANDFILL
 17925 Meridian St E
 Payallup, WA 98975

Weighed: Data
 Deposited: Data

BILL TO: 0
 Cash Customer

Vehicle ID: C102
 Reference: ELECTRON
 O #: TURF AND PLASTIC

Origin: OTHER

DATE IN: 08/07/2020 TIME IN: 10:31:39
 DATE OUT: 08/07/2020 TIME OUT: 10:55:02

INBOUND TICKET Number: 03-00635834

SCALE	WT.	LB
SCALE 1 GROSS	26540	LB
SCALE 2 TARE	23380	LB
NET WEIGHT	3160	LB

Qty	Description	Amount
1.580	CONST & DEMO-COM	264.46
	ST REFUSE	9.52
	NET CASH AMOUNT:	273.98
	TENDERED:	273.98
	AMOUNT:	

Terminal ID XXXXXXXXXXXX035
 Trans ID 000000004943
 Order ID 2008071054417166478
 Receipt # 2008071054417166478
 Trans Type Purchase
 Date/Time 2020-08-07 10:54:51
 Card Type Visa
 Card Number XXXXXXXXXXXX
 Entry Legend CHIP EMV
 Entry Method CONTACT
 Approval Code 0000000000000000
 AC 0016
 ATC A000000000000000
 AID VISA DEBIT
 AID NAME 808000000000
 TVR 8800
 TSI 81
 Resp CD 0000000044910037
 TRN REF # 0000
 VAL CODE

Total Amount USD\$273.98

Description:

Approved - Thank You

X _____
Cardholder Signature

Buyer agrees to pay total amount above
 according to cardholder's agreement ***
 I v v v

Customer Copy
 retain this copy for statement
 verification

Image 11. (2 of 2) Receipts to landfill that included turf and plastic debris.

Electron Turf Removal

as of:

Sep 16, 2020

Item #	River Mile	Latitude	Longitude	Description {Puyallup Tribe}	Update Sep 16, 2020 (Electron)
#1	41.6	46.908376°	-122.039250°	Black Debris caught on rocks.	Found, removed
#2	41.4	46.910208°	-122.041786°	Black debris in water.	Found, removed
#3	41.35	46.910592°	-122.042586°	Thin pipe [wire], hose or similar dangling downstream from rock.	USGS stream gage equipment. Requires equipment to remove
#4	41.15	46.912533°	-122.045241°	Iron beam or bar imbedded in substrate of river bar.	Found, no safe way to remove without equipment
#5	40.9	46.914646°	-122.049127°	May be artificial turf hung up on rock at confluence with Neisson Cr. (note confluence and main channel differ from 2018 aerials.) RM 40.9	Found, removed
#6 (to #10)	40.85	46.915717°	-122.049689°	#6 is Black sheeting caught on log. Black sheeting and artificial turf scattered among rocks and logs of a mid-channel bar and logjam (items #6 to #10). RM 40.8	Found, removed
#7	40.85	46.915717°	-122.049689°	Length of black sheeting caught in rocks	Found, removed
#8	40.85	46.915717°	-122.049689°	Artificial turf hung up on rock	Found, removed
#9	40.85	46.915717°	-122.049689°	Artificial turf hung up on rocks near log jam.	Found, removed
#10	40.85	46.915717°	-122.049689°	Black sheeting caught on rocks.	Found, removed
#11 (to #16)	40.85	46.915960°	-122.050077°	#11 is Black plastic sheeting - Several debris items (#11 to #16) scattered through this channel area.	Found, removed
#12	40.85	46.915960°	-122.050077°	Artificial turf hung up on rock	Found, removed
#13	40.85	46.915960°	-122.050077°	Sheet or plate (possibly metal) wrapped around rock	Found, removed
#14	40.85	46.915960°	-122.050077°	Black sheeting wrapped around rock	Found, removed
#15	40.85	46.915960°	-122.050077°	Length of pipe, hose or line streaming down current	Found, removed
#16	40.85	46.915960°	-122.050077°	Black sheeting wrapped around rock	Found, removed
#17 (to #21)	40.75	46.916875°	-122.051044°	#17 Black plastic caught among rocks on upstream end of a river bar with other nearby debris items (#18 to #21)	Found, removed
#18	40.75	46.916875°	-122.051044°	Square reddish may be metal/iron panel	Found, removed
#19	40.75	46.916875°	-122.051044°	Artificial turf on rock.	Found, removed
#20	40.75	46.916875°	-122.051044°	Black sheeting hung up on small log	Found, removed

#21	40.75	46.916875°	-122.051044°	Black sheeting hung up on rocks	Found, removed
#21.5	40.7	46.917418°	-122.051304°	Black plastic sheeting shreds hung up on rock in main channel.	Found, removed
#22	40.85	46.916233°	-122.049486°	#22 Artificial turf hung up on rock at upstream end of gravel bar. #22 to #24 are located in the right channel and close together.	Found, removed
#23	40.85	46.916233°	-122.049486°	#23 Black sheeting among on gravel/rocks of gravel bar.	Found, removed
#24	40.85	46.916297°	-122.049644°	Black sheeting hung up on gravels in small distributary of right channel.	Found, removed
#25	40.45	46.920617°	-122.054841°	Artificial turf tangled in root wad of tree in left side of main channel. (Note main channel differs from Google Earth 7/25/2018 imagery).	Found, removed
#26	39.8	46.928488°	-122.057959°	Artificial turf caught on rocks in mid channel ahead of gravel bar.	Found, removed

Table 1. Electron Turf Removal List per the Puyallup Tribe drone survey of #26 items, which have all been accounted for and removed by Electron.

